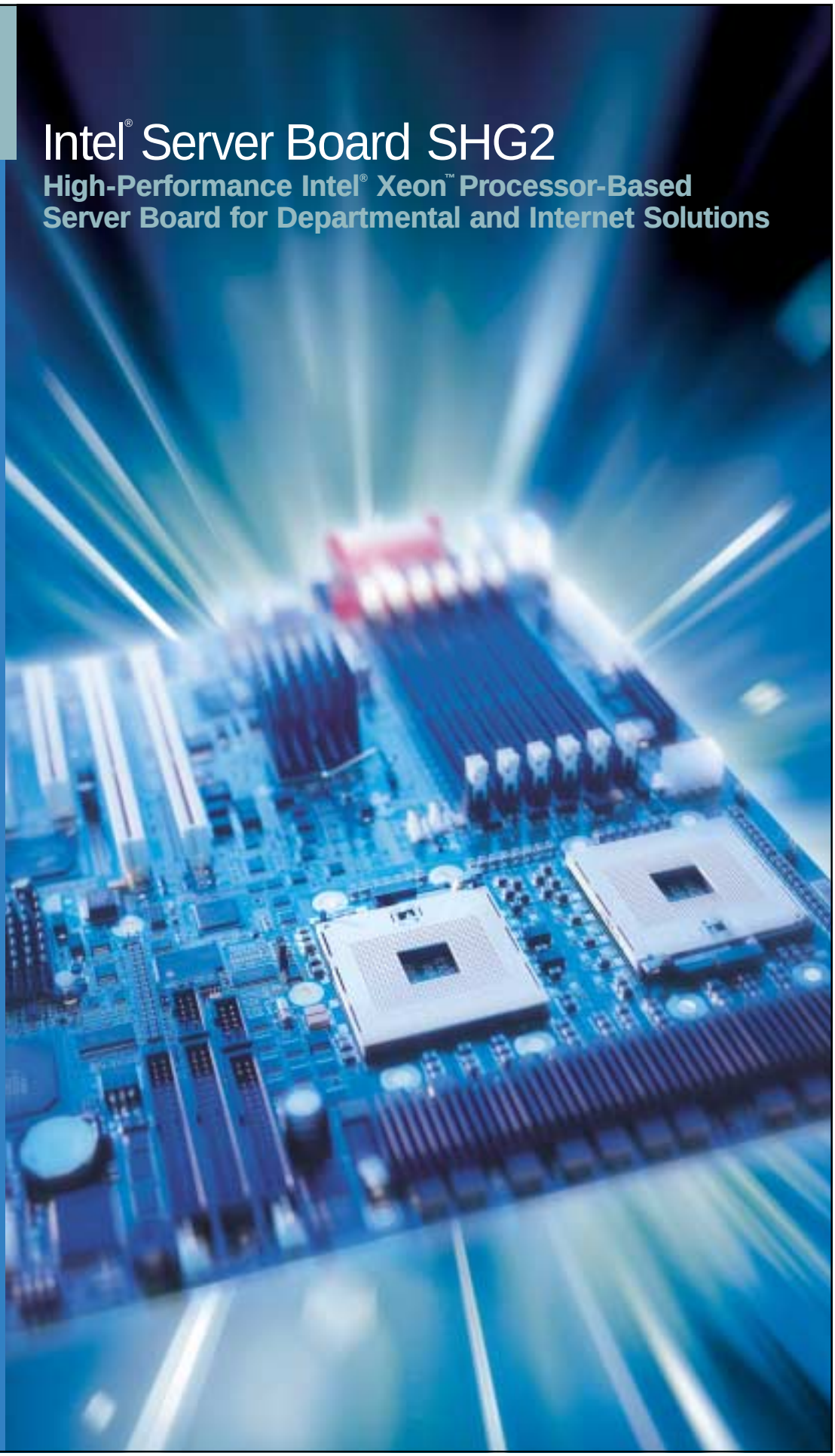
Intel® Server Board SHG2

High-Performance Intel® Xeon™ Processor-Based Server Board for Departmental and Internet Solutions

Product Brief

- Supports Dual Intel® Xeon™ Processors with 512KB Level 2 Advanced Transfer Cache
- Triple-Peer PCI Buses with PCI-X Support
- Up to 12 GB of ECC DDR200/266 SDRAM



A Manageable and Reliable Solution to High-End Performance

The Intel® Server Board SHG2 provides businesses an ideal solution to the challenges of building, running, and supporting departmental and Internet-driven applications. For performance, the board supports dual Intel® Xeon™ processors, dual-channel Ultra160 SCSI, dual integrated Intel® Server Network Connections (one Intel® PRO/100+ Server Network Connection and one Intel® PRO/1000 XT Network Connection), and registered ECC DDR200/266 SDRAM. It also provides triple-peer PCI buses and three PCI-X slots supporting speeds of up to 133 MHz.

Designed Specifically for Evolving Applications

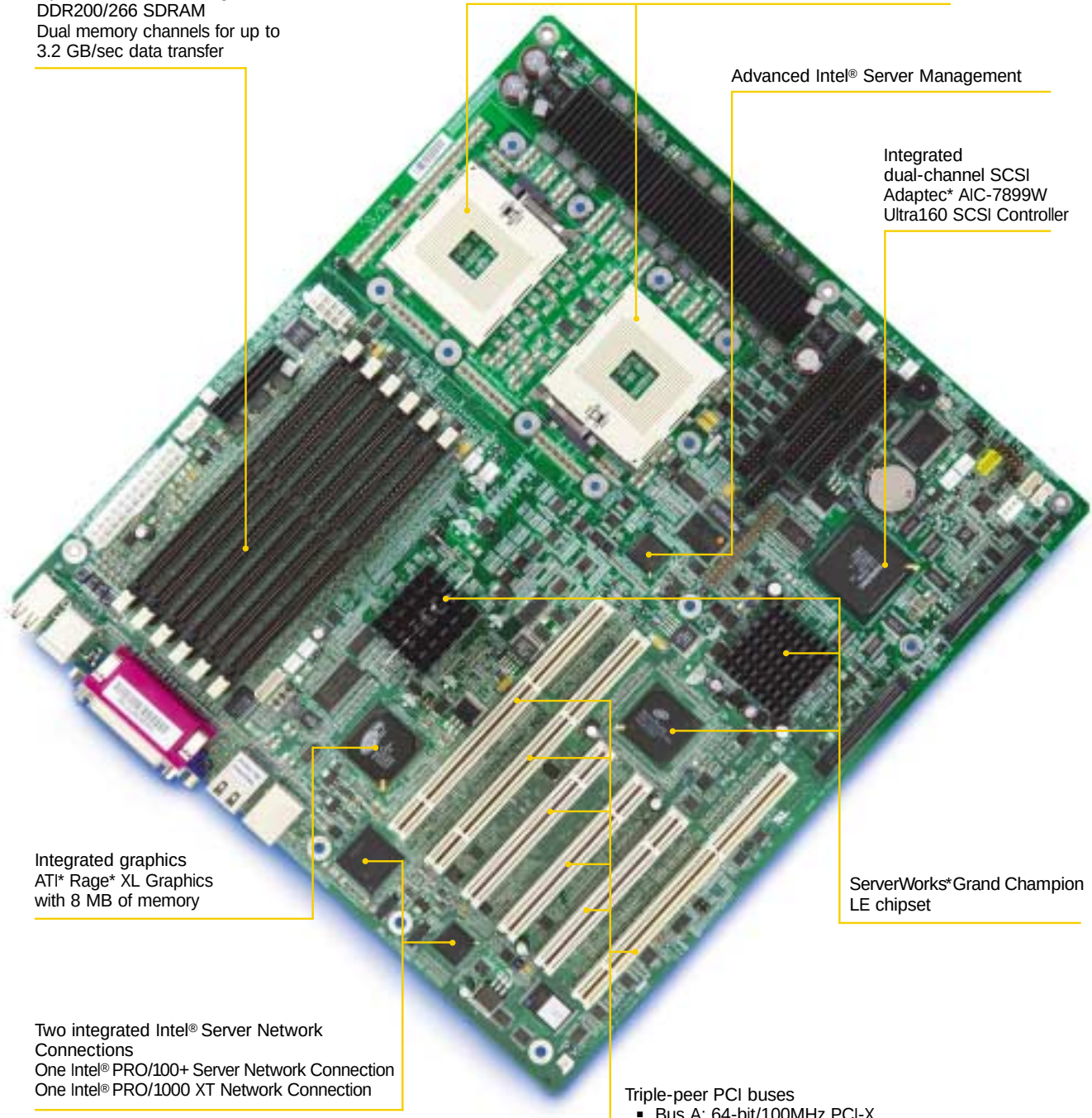
The Intel® Server Board SHG2 is a remarkably versatile board, having been validated for pedestal and rack configurations and with a number of third-party chassis to meet a variety of price points and features[1]. This makes the Server Board SHG2 an excellent solution for customers whose workgroup database, groupware, or secure Web-server applications must evolve and grow alongside the business.

Performance, reliability, manageability, and flexibility make the Intel® Server Board SHG2 a smart choice for you and your customers.

Features	Benefits
Support for one or two Intel® Xeon™ processors with 512KB Advanced Transfer cache and Hyper-Threading Technology	Processing performance for demanding server applications
Support for up to 12 GB of registered ECC DDR200/266 SDRAM with six DIMM sockets	Memory flexibility and capacity to support a wide range of server solutions
Dual (two-way) interleaved memory	High-performance memory subsystem with up to 3.2 GB/sec of data transfer
Triple-peer PCI with PCI-X support	Distributed I/O workload for boosting overall I/O throughput
Six full-length PCI slots: up to one 64-bit/133MHz PCI-X, two 64-bit/100MHz PCI-X, and three 32-bit/33MHz	Room to grow with support for high-performance PCI cards
Two integrated Intel® Server Network Connections (one Intel® PRO/100+ Server Network Connection and one Intel® PRO/1000 XT Network Connection)	Widespread compatibility, scalable bandwidth, and redundant links for excellent networking capabilities
Dual-channel Ultra160 SCSI with modular ROMB support	Integrated high-performance I/O and option for low-cost RAID with Intel® RAID Controller SRCMR
Integrated ATI* Rage* XL video controller with 8 MB of video memory	High-quality video without the need for a video-adapter card
Advanced Intel® Server Management including integrated in-band and out-of-band remote management, event alerting and logging, and proactive fault management	Simplified troubleshooting and maintenance
Three-year limited warranty	Peace of mind

[1] See http://support.intel.com/support/motherboards/server/ for a complete list of Intel and third-party chassis that are compatible with the Intel® Server Board SHG2.

Intel® Server Board SHG2 for the Intel® Xeon™ Processor


Up to 12 GB of ECC registered DDR200/266 SDRAM
Dual memory channels for up to 3.2 GB/sec data transfer
Support for two Intel® Xeon™ processors with 512KB L2 cache
Advanced Intel® Server Management
Integrated dual-channel SCSI Adaptec* AIC-7899W Ultra160 SCSI Controller
Integrated graphics
ATI* Rage* XL Graphics with 8 MB of memory
ServerWorks* Grand Champion LE chipset
Two integrated Intel® Server Network Connections
One Intel® PRO/100+ Server Network Connection
One Intel® PRO/1000 XT Network Connection
Triple-peer PCI buses
Bus A: 64-bit/100MHz PCI-X
Bus B: 64-bit/133MHz PCI-X
Bus C: 32-bit/33MHz

The Boxed Intel® Server Board SHG2

Included for easy integration:

1. One Intel® Server Board SHG2
2. Quick Start User Guide
3. CD-ROM with Intel® Server Management software
4. Resource CD-ROM with software drivers, configuration tools, Intel® SMaRT Tool software, and technical product information
5. Cable kit
6. SSI-compliant I/O shield
7. Board-layout sticker

Build Value with Intel: Server Products, Programs, and Support

Intel is committed to providing industry-leading server building blocks, programs, and support services to help system integrators successfully compete in the evolving Internet economy. Get the high-value server solutions you need to succeed by taking advantage of the outstanding value Intel provides its system integrators:

- High-quality server building blocks
- Extensive breadth of server building blocks
- Solutions and tools to enable e-Business
- Comprehensive training services
- Worldwide 24x7 technical support
- World-class service, including a three-year limited warranty and Advanced Warranty Replacement

For more information on the Intel added-value server offerings, please visit: www.intel.com/go/serverbuilder

Complete Your Intel® Server Board SHG2 with Intel® Server Building Blocks

Add the following Intel building blocks to your Intel Server Board SHG2 to ensure a highly reliable, available, and scalable server:

Intel® Xeon™ Processors provide a powerful foundation for business computing. They help to keep your business up and running by enabling you to cost-effectively manage growth by simply adding processors to your existing servers.

Intel® Server Management monitors key server components and helps solve many problems easily with integrated in-band and out-of-band remote management through LAN and modem connections, event logging and alerting through e-mail or paging devices, and proactive fault management. Intel Server Management is included with every boxed Intel® Server Board SHG2 at no additional cost.

Intel® RAID Controllers are designed to protect data, applications, and the server operating system from disk failures. Intel offers an affordable high-performance line of RAID products, all of them tested and validated for easy integration with Intel server building blocks.

Intel® PRO Server Network Connections, including Fast Ethernet and Gigabit Ethernet server adapters, help to reduce bottlenecks and improve availability with advanced performance and server features.

Intel® Server Chassis SC5200 is designed specifically to work in tandem with the Intel® Server Board SHG2. Multiple options enable extensive customization of the Server Chassis SC5200, for example:

- A base configuration features five one-inch fixed-drive bays, five fans for ample cooling, and a 450W PFC power supply.
- A hot-swap redundant-power and fan pedestal configuration includes seven fans (five of which are hot-swap redundant), a hot-swap redundant drive bay with capacity for five one-inch-high SCSI hard drives, and 350W 2+1 dual line cord redundant power.
- A black rack-optimized redundant-power and fan version provides all the functionality of the redundant-power and fan pedestal version in an easy-to-install 5U rack-optimized chassis.
- An option for up to 10 hot-swap Ultra320 SCSI hard-drive bays boosts internal storage capacity to 730 GB[2].

[2] At product introduction, based on support of 73GB drives. HDD capacity is expected to increase as new technology is introduced.

Intel® Server Board SHG2 Specifications

Processor/Cache	
Processors Supported	Intel® Xeon™ processors with 512KB of integrated L2 cache and a 400MHz system bus. For the latest processor support, visit http://support.intel.com/support/motherboards/server
System Memory	
Memory Capacity	Six DIMM sockets for up to 12 GB of registered ECC DDR200/266 SDRAM (128MB to 2GB DIMMs supported; memory must be populated in pairs)
Memory Type	DDR200/266 (200MHz) registered SDRAM ECC, 184-pin gold-plated DIMMs
DIMM Sizes	128 MB, 256 MB, 512 MB, 1 GB, 2 GB
Memory Voltage	2.5 V only
Error Detection	Corrects single-bit errors, detects double-bit errors (using ECC memory), and supports Chipkill* (multi-bit detect, multi-bit correct)
Integrated On-Board	
Chipset	ServerWorks* Grand Champion* LE
Ultra160 SCSI Controller	Adaptec* AIC-7899W Dual Channel: two Ultra160/LVD channels (connected via two on-board internal 68-pin-wide connectors); maximum data transfer: 160 MB/sec on each Ultra160/LVD channel
Intel® Server Network Connections	One Intel® PRO/100+ Server Network Connection (Intel® 82550PM controller, supports 10BASE-T and 100BASE-TX), one Intel® PRO/1000 XT Network Connection (Intel® 82544GC controller, supports 10BASE-T, 100BASE-TX, and 1000BASE-T); RJ45 output
Graphics	ATI* RAGE* XL SVGA PCI video controller with 8 MB of video memory
Super I/O Controller	National* PC87417VLA*
Input/Output	
PCI	Triple-peer PCI, with six slots: bus A: two 64-bit/100MHz, bus B: one 64-bit/133MHz, bus C: three 32-bit/33MHz
IDE	Two ATA-100 EIDE channels for a total of four IDE devices
USB	Three stacked USB connectors and one internal USB header
Serial Ports	Two asynchronous, RS-232C ports, one 9-pin serial connector on rear I/O panel and one 10-pin header on board
Floppy Controller	1.44 MB, 2.88 MB, 3-mode support
Keyboard/Mouse	PS/2, 8240A-compatible

Intel® Server Management[3]	
Remote Management	Remote access both in-band and out-of-band to system status, logs, configuration data, and utilities without the need for a remote-management card; event filtering and proactive alerting through LAN and mobile devices
System Monitoring and Auto Recovery	System health indicators and corrective actions including automated power cycling, OS watchdog timer, fault-resilient booting
Server Troubleshooting	Continuous health monitoring, text console redirection, and error logs
Server Maintenance	Integrated with Intel® SMaRT Tool Module for Server Board SHG2
Operating Systems Supported	Microsoft* Windows* 2000, Red Hat* Linux*, and Novell* NetWare*
Intelligent Platform Management Support	Intelligent Platform Management Interface (IPMI) 1.5
Tested Operating Systems	
Microsoft* Windows* 2000 Advanced Server, Red Hat* Linux*, Novell* Netware, Caldera* OpenUnix, Turbo Linux*	
System BIOS	
BIOS Type	8Mb Flash EEPROM with Phoenix* BIOS, Multi-Processor Specification rev 1.4
Special Features	Plug and Play, IDE drive autoconfigure, SMBIOS 2.3, ECC/parity support, multilingual support
Configuration Utilities	System Setup Utility (SSU) for easy system setup of BIOS utilities, Plug and Play
Jumpers and Front-Panel Connectors	
Jumpers	CMOS clear, password clear
Front-Panel Connectors	Power LED, power on/off switch, reset switch
Mechanical	
Server Board Style	SSI Entry E-Bay 3.0
Server Board Size	12" x 13"

Power Requirements	
+5V	14.00 A maximum continuous current
+5V Standby	1.54 A minimum continuous current
+12V	25.50 A maximum continuous current
+3.3V	9.80 A maximum continuous current
-5V	0.00 A maximum continuous current
-12V	0.25 A maximum continuous current
Environment	
Ambient Temperature[4]	Operating (system): 5°C to 35°C; non-operating/storage (system): -40°C to +70°C
Relative Humidity	Non-operating: 95%, non-condensing at 30°C
Safety Compliance	
Europe	EN60950; CE Mark-EU Directive 73/23/EEC; GOST-R Mark
International	IEC60950
U.S. and Canada	UL/CUL 950-CSA 950 (UL Recognition Mark)
Electromagnetic Compatibility (EMC) Compliance (Class A)	
Based on a board configured in a compatible[5] Intel host system.	
Australia/New Zealand	Verified to AS/NZS 3548, Class A (C-tick Mark)
Canada	Verified to ICES-003, Class A
Europe	Verified to EN55022, Class A, and EN55024 (CE Mark-EU Directive 89/336/EEC)
International	Verified to CISPR-22/VCCI, Class A
Japan	Verified to CISPR-22/VCCI, Class A
Korea	RRL Certification to MIC Notices 1997-41 & 1997-42
Russia	Verified to GOST-R Mark, Class A
Taiwan	Verified to BSMI CNS 13438, Class A
U.S.	Verified to FCC, Class A

Order Codes

For information on the most recent product updates and their availability, visit http://www.intel.com/go/serverbuilder. For a complete list of Intel and third-party compatible chassis and adapter cards, visit http://support.intel.com.

Item	Product Order Code
Intel® Server Board SHG2	SHG2
Intel® Server Chassis SC5200 Base	KHD3BASE450
Intel® Server Chassis SC5200 Redundant-Power and Cooling (beige)	KHD3HSRP650
Intel® Server Chassis SC5200 Rack Optimized Redundant-Power and Cooling (black)	KHD3HSRP650R
Intel® Server Chassis SC5200 Rack Conversion Kit	AHD3RACK
Intel® Server Chassis SC5200 Spares Kit	FHD3SPRS
Intel® RAID Controller SRCU32	SRCU32U
Intel® RAID Controller SRCMR	SRCMRU

[3] Full usage of some server-management features requires the use of an Intel® Server Chassis.

[4] Environment ambient temperature is the system-intake measurement for an Intel® Server Board SHG2 installed in an Intel® Server Chassis SC5200.

[5] Compatible host system denotes the system(s) with which Intel tested the board and found it compliant.

For the most current product information on Intel server building blocks, visit: www.intel.com/go/serverbuilder

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